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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,636	12/04/2000	Karl Emerson Mautz	SC0192WD	3043

23125 7590 08/24/2004
FREESCALE SEMICONDUCTOR, INC.
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AUSTIN, TX 78729

EXAMINER

CABRERA, ZOILA E

ART UNIT PAPER NUMBER

2125

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/729,636

Applicant(s)

MAUTZ ET AL.

Examiner

Zoila E. Cabrera

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-19 is/are rejected.
- 7) ☒ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 10, 15, 18, and 19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. Claims 1-5, 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Garric et al. (US 5,411,358)** in view of **Inoue et al. (US 6,259,961)**.

Garric discloses, regarding claims 1 and 18,

- An assembly comprising a plurality of mask containers, each for holding one or more lithography masks (Col. 12, lines 4-12; Col. 49, lines 14-20; Col. 40, lines 54-60), wherein each one of the containers has an engaging apparatus adapted to engage with the corresponding engaging apparatus on another one of the containers, such that two or more containers can be stacked together in a fixed relationship to one another (Col. 29, lines 1-5 i.e., a number of containers can be easily piled up for transportation; Col. 13, lines 44-47, i.e., container is stackable; Col. 41,

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lines 35-37), and wherein each mask container has an electronic tracking device, (Col. 28, lines 8-30).

Regarding claims 10 and 15,

- A manufacturing system for manufacturing semiconductor devices comprising: a plurality of mask containers (Col. 12, lines 4-12; Col. 49, lines 14-20; Col. 40, lines 54-60), each for holding one or more lithography masks, each one of the containers having a locking apparatus adapted to engage with the locking apparatus on another one of the containers, such that two or more containers can be carried together in a fixed relationship to one another (Col. 29, lines 1-5 i.e., a number of containers can be easily piled up for transportation; Col. 13, lines 44-47; Col. 41, lines 35-37); a plurality of lithography bays (Col. 12, lines 21-25; Col. 19, lines 34-35); a transport rail system for carrying the containers between different lithography bays (Fig. 1, element 401); wherein each lithography bay has a transmitter unit and a receiver unit for respectively transmitting and receiving lithography data (Fig. 1A, elements 604'A, 604A, 604B), and each mask container has an electronic tracking device having a transmitter unit for transmitting the lithography data read to the same lithography bay or another lithography bay (Col. 28, lines 8-10 and lines 14-30; Fig. 1, bar code readers 604'A – 604B); the transport rail system having a carrier and the mask containers each having an engaging apparatus for engaging with the carrier such that the

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mask containers can be carried by the rail system (Col. 27, lines 60-67 – Col. 28 lines 3-7; Col. 41, lines 35-37).

Regarding claim 19,

- A method of operating a semiconductor device manufacturing system, the manufacturing system comprising a plurality of mask containers each containing a single mask (Col. 40, lines 58-60) and each container having a tracking device for transmitting data corresponding to the mask within the container (Col. 28, lines 12-30), the method comprising the following steps:

receiving lithography data from a plurality of mask containers (Col. 28, lines 14-20), selecting two or more containers on the basis of the received lithography data (Col. 41, lines 35-37, i.e., Interface apparatus 200 may be adapted to operate with a pile of containers; Fig. 1A, elements 604A and 200);

Operating a first automatic handling device so as to group together the selected containers in the form of a stack (Col. 29, lines 3-5 i.e., a number of containers can be easily piled up for transportation; Col. 41, lines 35-37; Col. 24, lines 37-39; Col. 13, lines 44-47) and to place the stack on a rail system connecting to a lithography bay having an exposure tool apparatus (Fig. 1A, element 401; Col. 18, lines 65-67, i.e., processing equipment); operating the rail system so as to transport the stack to the lithography bay (Fig. 1A elements 401; Col. 29, lines 3-5, i.e., a number of containers can be easily piled up for transportation);

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further operating the exposure tool apparatus to receive lithography data from at least one of the mask containers in the stack (Fig. 1A elements 604A – 604B);

Operating the lithography tool according to the data received from a mask container in the stack (Col. 28, lines 27-30); wherein operating the lithography tool comprises **at least one step out of the group of the following steps:**

- Removing a mask from a container (Col. 20, lines 23-26);
- Inserting a mask into a container;
- Removing a mask, returning the mask to a container and subsequently removing another mask from a different container
- Unstacking the containers in a stack
- Reassembling a stack
- Adding data to a mask in electronic form;
- Reading data from a mask;
- Exposing a semiconductor wafer or any other work-product by sending electromagnetic radiation through a mask;
- Storing a mask
- Manufacturing a mask;
- Maintaining a mask;
- Monitoring the transmission properties of a mask;
- Damaging a mask, disposing of a mask, recycling a mask, or any other action that removes a mask from the factory;

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- Testing and measuring the properties of a mask, either directly, or indirectly;
- Assigning an identifier for a mask;
- Assigning an identifier for a plurality of masks; and
- Transferring information that relates to a mask from a first electronic device in a first container to a further electronic device in a further container.

As for claims 2-5, 11-14, and 16-17, **Garric** further discloses,

- the engaging apparatus comprises a latch mounted on one face of the container, and a catch mounted on an opposite face of the container, such that two or more mask containers may be engaged by engaging the latch of one mask with the catch of another mask (Col. 29, lines 1-5; Fig. 7, elements 112B, 150B);
- each container has electrical contacts positioned such that contacts on two neighbouring containers in a stack form an electrical connection when the two containers are correctly positioned relative to each other (Col. 42, lines 35-41; Fig. 14B element 312);
- the receiver unit and the transmitter unit respectively receive and transmit radio frequency radiation (Col. 28, lines 20-24);
- the receiver unit and the transmitter unit respectively receive and transmit infra-red radiation (Col. 28, lines 35-37);

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- a handling apparatus is provided for automatically loading or unloading mask containers onto or from the rail system (Col. 20, lines 23-26 and lines 34-37);
- there is provided a handling apparatus for bringing mask containers into stacked engagement with one another and for releasing a container from a stack or automatically removing a mask from a container (Col. 39, lines 48-50).
- there is provided a central computer with an input and output port for exchanging lithography data with the mask containers and the lithography bays (Fig. 1B, element 600; Col. 19, lines 1-12; Col. 28, lines 8-11 and lines 24-30);
- the rail system is provided with a traction apparatus for moving the mask containers and wherein the traction apparatus is controlled by the central computer (Col. 16, lines 20-25; Col. 17, lines 20-23; Col. 18, lines 65-68);
- said rail system carries the mask containers in a stack (Figs. 14A – 14B; Fig. 2A, rail-shaped elements 114A; Col. 24, lines 13-14);
- said rail system carries the mask containers in a frame with slots (fig. 14B).

Regarding claims 1, 10, 15, 18 and 19, **Garric** discloses that each mask container has an electronic tracking device (Col. 28, lines 1-20). **Garric** further discloses that some process parameters may be written directly onto the wafer to be taken in consideration in the subsequent processing steps (Col. 28, line 54-56) and thereafter for direct wafer identification data reading (Col. 28, line 62).

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However, **Garric** does not disclose, the tracking device having a receiver unit for receiving lithography data, a memory for storing the lithography data, a processor unit for reading or writing the lithography data to or from the memory, and a transmitter unit for transmitting the lithography data read from the memory. But **Inoue** discloses a tracking device having a receiver unit for receiving lithography data, a memory for storing the lithography data, a processor unit for reading or writing the lithography data to or from the memory, and a transmitter unit for transmitting the lithography data read from the memory (Fig. 2-3, delivery device 20 corresponds to container of wafers or cassettes; Col. 3, lines 48-58, i.e., "the delivery device comprises an interface 31 which exchanges data with the control computer 10, a lot information I/O processing device 32 which processes to display the lot information on the display 24 according to the data from the control computer 10 and sends the ID information captured from the bar-code reader to the control computer").

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Garric** with the control system of **Inoue** because it would provide an improved system wherein information of the wafers in a container or delivery device can be easily tracked between the delivery device and the control computer (**Garric**, Col. 3, lines 50-55).

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4. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Garric** and **Inoue** as applied to claim 1 above and further in view of **Maney et al. (US 5,166,884)**.

Regarding claims 6-7, **Garric** and **Inoue** disclose the limitations of claim 1 above but fails to specifically disclose the type of memory used, as claimed in claims 6-7, EEPROM and SRAM. However, **Maney** discloses an intelligent system for processing and storing articles wherein a non-volatile memory is used to store the identity, status and history of the articles in the container (Abstract, lines 1-4, please note that EEPROM is a non-volatile memory). Furthermore **Maney** further discloses the use of SRAM (Col. 4, lines 62)). Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Maney** with the teachings of **Garric** and **Inoue** because it would provide with an stable storage system and thereby improving the tracking of the containers between processing stations (**Maney**, Col. 4, lines 32-33; Abstract).

Allowable Subject Matter

5. Claims 8-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

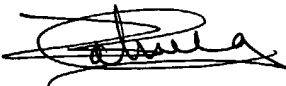
Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning communication or earlier communication from the examiner should be directed to Zoila Cabrera, whose telephone number is (703) 306-4768. The examiner can normally be reached on M-F from 8:00 a.m. to 5:30 p.m. EST (every other Friday).

If attempts to reach the examiner by phone fail, the examiner's supervisor, Leo Picard, can be reached on (703) 308-0538. Additionally, the fax phones for Art Unit 2125 are (703) 872-9306. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist at (703) 305-9600.

A handwritten signature in black ink, appearing to read 'Zoila', with a stylized flourish underneath.

Zoila Cabrera
Patent Examiner
8/21/04